REMARKS

Claims 1-18 are pending. By this Amendment, Claims 1, 4, 7 and 10 are amended and new Claim 18 is added.

Applicants gratefully acknowledge the Examiner's carefully detailed responses in the Office Action to Applicants' arguments presented in the previous Reply.

Claim Rejections under 35 U.S.C. § 112 1st and 2nd Paragraphs

In the Office Action, the Examiner rejects Claims 1-17 under 35 U.S.C. § 112, 1st paragraph on grounds that the claimed invention was not sufficiently described in the specification so as to reasonably convey to a person of ordinary skill in the art at the time of the invention, that the inventors possessed the invention. The Examiner also rejects Claims 1-17 under 35 U.S.C. § 112, 2nd paragraph as being indefinite. In both of these rejections, the Examiner's argument is that the application does not define "semantic net hierarchy".

These rejections are respectfully traversed, because the meaning and context of "semantic net" and "semantic net hierarchy" were known to those of ordinary skill in the art at the time of the invention. See, for example, "*Hypertext Writing and Document Reuse: The Role of a Semantic Net (1990)*", by Roy Rada, for example at section 2.2, second paragraph. See also, for example, *"Machine Conceptualization of Natural Language Text"* authored by Joe Lohner and published in 1995, for example at section 3.1, and section 11.3.3.1. Copies of these documents are submitted herewith.

Accordingly, Applicants respectfully submit that the presently pending application satisfies all requirements of 35 U.S.C. § 112. Withdrawal of the rejections of the claims under 35 U.S.C. § 112, 1st paragraph and 2nd paragraph is respectfully requested.

Claim Rejections under 35 U.S.C. § 103(a) – Reply to Examiner's Remarks

In the Office Action, the Examiner rejects Claims 1-17 under 35 U.S.C. 103(a) over U.S. Patent No. 6,072,904 to Desai, *et al.* (Desai) in view of U.S. Patent No. 5,721,902 to Schultz (Schultz) and further in view of U.S. Patent No. 5,864,845 to Voorhees, *et al.* (Voorhees). This rejection is respectfully traversed. The Examiner also rejects Claims 13-15 under 35 U.S.C. § 103(a) over Desai, Schultz and Voorhees in further combination with U.S. Patent No. 6,385,596 to Wiser (Wiser). These rejections are respectfully traversed.

On numbered page 9 of the Office Action, the Examiner argues that Desai discloses identifying a lowest level ***linguistic term***, as recited in Claims 16-17. However, Desai discloses searching images, not language or text. Accordingly, Desai utterly fails to disclose or suggest identifying a lowest level ***linguistic term***.

On numbered page 9 of the Office Action, the Examiner also appears to argue that since he does not understand what the term "semantic net hierarchy" means, he can either ignore that recited claim feature or assume that Desai discloses it. To support a rejection, the Examiner must establish that all claimed features are taught or suggested by the prior art. Desai completely fails to disclose or suggest using a semantic net hierarchy, as recited for example in independent Claims 1 and 4.

In the paragraph spanning numbered pages 11 and 12 of the Office Action, the Examiner argues that Voorhees discloses "*applying a statistical clustering algorithm to the expanded logged search requests based on content of the expanded logged search requests, thereby grouping similar search requests together*", as recited in independent Claims 1, 7 and 10. This assertion is respectfully traversed, because as further recited in independent Claims 1, 7 and 10, the *search requests are* ***different***. In sharp contrast, the portions of Voorhees cited by the Examiner (C1/L60-65, C2/L5-16), disclose applying the ***same*** search request to *different search engines*, and then ranking the different engines' search results by search engine. Accordingly, this disclosure of Voorhees fails to disclose or suggest these features of Claims 1, 7 and 10. Applicants further note

that Voorhees's training phase likewise fails to disclose or suggest these features, as explained in the previous Reply and reproduced further below.

The Examiner's arguments in the paragraph spanning numbered pages 15 and 16 of the Office Action are obviated for the same reasons set forth above with respect to the paragraph spanning numbered pages 11 and 12 of the Office Action.

In the last paragraph on numbered page 14 of the Office Action, the Examiner argues that Voorhees performs clustering based on search results and search results are based on search queries, therefore by transitivity, Voorhees performs clustering based on queries. This assertion is respectfully traversed, because clustering based on search results is different from clustering based on search queries, and can provide wide different (even opposite) results. For example, consider four search queries: Q1) red summer fruit; Q2) red fall fruit; Q3) vine fruit from Washington; and Q4) tree fruit from Washington. Grouping by search query yields (Q1, Q2) since both Q1 and Q2 indicate "red fruit", and (Q3, Q4) since both Q3 and Q4 indicate "Washington fruit". However, a search result of "Washington summer tomato on a vine" and "Washington summer watermelon on a vine" satisfies Q1 and Q3, whereas search results of "Washington fall apple on a tree" and "Washington fall peach on a tree" satisfies Q2 and Q4. Thus, grouping by search result can produce very different results than grouping by search query. Accordingly, transitivity does not apply, and Voorhees's disclosure of clustering based on search results fails to disclose or suggest clustering based on search queries.

In the first full paragraph on numbered page 10 of the Office Action, the Examiner argues that since Schultz discloses expanding a query, Schultz therefore also discloses expanding a query result, as encompassed for example by independent Claim 4. This assertion is respectfully traversed. Expanding a query can cause a very different outcome from expanding a query result. Furthermore, Applicants note that Claim 4 recites expanding metadata that is associated with digital media records that are in turn defined by search results. This further emphasizes that expanding a query is not the same as, and does not disclose or suggest, expanding a query result.

In the paragraph spanning pages 12 and 13 of the Office Action, the Examiner argues that Applicants' previous arguments that a person of ordinary skill in the art would not have combined Desai with Voorhees have no weight, because "*the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.*" However, Applicants did not merely point out advantages, Applicants pointed out that *the proposed modifications would render the prior art invention being modified unsatisfactory for its intended purpose*, which **compels** a conclusion that *there is no suggestion or motivation to make the proposed modification*, as set forth in *In re Gordon*, 733 F.2d. 900, 221 USDQ 1125 (Fed. Cir. 1984). See MPEP § 2143.01(V) (page 2100-129). Accordingly, Applicants respectfully submit that motivation is lacking to combine Desai with Voorhees.

In the paragraph spanning pages 13-14 of the Office Action, the Examiner traverses Applicants' argument that there is insufficient motivation to combine Schultz's query expansion teaching with Desai, because it would have been obvious to add Voorhees to a combination of Schultz and Desai. The Examiner's argument is illogical, because motivation to combine Voorhees with a pre-existing combination of Schultz and Desai is irrelevant to the question of motivation to combine Schultz with Desai in the first place.

Wiser fails to overcome the deficiencies of Desai, Schultz and Voorhees variously described above, and the various deficiencies of each of Desai, Schultz, and Voorhees are not overcome by the others of Desai, Schultz, and Voorhees.

Applicants further submit that the applied prior art fails to disclose or suggest "*identifying, using the semantic net hierarchy in combination with term frequency in a reference corpus, a lowest level term in the hierarchy that subsumes all queries in a grouping of search requests*", as recited in Claim 18.

For at least the above reasons, Applicants respectfully submit that the asserted prior art fails to disclose or suggest the claimed invention. Withdrawal of the rejections under 35 U.S.C. § 103(a) is respectfully requested.

Applicants' previously submitted arguments remain relevant, and are reproduced below.

Previously Presented Arguments

Applicants respectfully note that Desai discloses receiving a target image from a user, identifying vectors of edge characteristics within the target image and within images in a database, and then comparing edge characteristic vectors of the target image against those of the images in the database, to match the target image with images in the database, or in other words identify images in the database that match the target image. Desai further discloses increasing a speed of the search by limiting the scope of the search. The database is first partitioned into clusters, and then the search is performed on (or limited to) a cluster that is most similar to the target image. See, e.g., Desai's Abstract and Desai at column 2, lines 22-38.

Desai apparently fails to disclose or suggest a) identifying, **using a semantic net hierarchy**, a lowest-level term in the hierarchy that subsumes all queries in a grouping of search requests, as recited for example in independent Claim 1, and b) identifying, **using a semantic net hierarchy**, a lowest-level term in the hierarchy that subsumes all of the expanded query metadata results in the grouping of expanded query metadata results, as recited in independent Claim 4. In contrast, Desai mathematically matches edge characteristic vectors of images. Desai does not appear to disclose or use a semantic net hierarchy. Furthermore, since Desai is directed to images and mathematical descriptions of image characteristics, Desai apparently fails to disclose or suggest identifying a lowest level **linguistic** term, as recited for example in dependent Claims 16-17. Schultz and Voorhees fail to overcome these deficiencies of Desai.

With respect to Schultz, Applicants note that Schultz discloses expanding terms in a search *query*, and then performing a search using the expanded term(s). See, for example, the Abstract of

Schultz and Schultz at column 6, lines 24-39. However, Schultz apparently fails to disclose or suggest expanding a search *result*, and thus fails to disclose or suggest expanding metadata associated with selected media records that are defined by search results, as encompassed by independent Claim 4. Desai and Voorhees fail to overcome this deficiency of Schultz.

Applicants acknowledge that the Examiner cites Schultz at column 2, lines 57-61, which teach identifying both text and multimedia documents relevant to a query. However, Applicants note that Schultz discloses at column 4, lines 6-31 how this is done. In particular, this passage of Schultz discloses searching an index database that associates search terms with both text documents and multi-media records. Schultz's query expansion does not appear to implement or enable the feature of identifying both text documents and multimedia files. ***In other words, it is Schultz's index, not a query expansion, that identifies both text and media.*** Accordingly, the Examiner's asserted motivation for combining Schultz with Desai for the feature of expanding a search query, does not logically follow. Applicants respectfully submit that Schultz's feature of searching an index database search terms with both text documents and multi-media records, does not provide motivation to combine Schultz's query expansion teaching with Desai.

With respect to Voorhees, Applicants note that Voorhees clusters search queries based on search *results*, and does not cluster search queries based on search *query content*. Generally, Voorhees considers a situation where a search is performed by simultaneously applying the same search query to different search engines, and then combining search results from the different search engines into a single list report. Voorhees's objective is to predict the effectiveness for each of the different search engines for the search query, and then rank and report the results in the list based on the predictions. Thus, a search engine that is predicted to provide highly relevant search results can be allotted more space in the list for its search results, and/or its search results can be given higher ranking, than those of search engines predicted to provide less relevant results.

Voorhees discloses first applying a training procedure to rate the different search engines for representative search queries. After training is completed and a new search query is received, the training data can be used to predict how relevant each search engine's search results will be, and the

prediction for each engine is used to organize the combined search results of the all the engines into a single list.

Specifically, Voorhees in columns 4-5 discloses a training procedure. For each search engine, the search engine searches using training queries, and the search results are returned by the engine. **The training queries are clustered based on how similar the search *results* are to each other.** See, for example, Voorhees at column 4, lines 42-46. Centroids of the clusters are also generated (see e.g., column 4, lines 46-48). The search results are evaluated for relevance by a user (see, e.g., column 2, lines 42-44 and lines 46-49), and each cluster is assigned a weight. The cluster's weight indicates how effective or relevant the search results of the training queries in that cluster are, for that search engine (see e.g., column 4, lines 51-54). See also Voorhees at column 5, lines 32-56. Thus, the training queries are clustered based on the search results, not on content of the training queries.

After training when a new search query is given to a search engine, a cluster centroid is identified that is most similar to the new search query, and the weight (or expected quality measure) of the corresponding cluster is returned as the weight for the search engine. Then, the returned weight is used to rank and/or present the engine's search results for the new query in the single, combined list of search results from all the engines.

Accordingly, Voorhees fails to disclose or suggest applying a statistical clustering algorithm to the expanded logged search requests based on content of the expanded logged search requests, thereby grouping similar search requests together, as recited in Claim 1, and similar features recited in independent Claims 7 and 10. Applicants further note that Voorhees fails to disclose or suggest selecting a subset of search requests prior to clustering. In particular, Voorhees fails to disclose or suggest applying a statistical clustering algorithm to the expanded logged search requests based on content of the expanded logged search requests, wherein the search result for the logged search requests is empty, as encompassed by Claim 7. Voorhees further fails to disclose or suggest applying a clustering algorithm to search requests whose corresponding results received expressions of interest from users. Accordingly, Voorhees fails to disclose or suggest *performing, by the search*

engine, searches based upon the search requests, yielding respective search results, each search result defining selected digital media records, receiving expressions of interest from users with respect to selected digital media records, logging the search requests for which a user has expressed interest in a selected digital media record, expanding the logged search requests, and *applying a statistical clustering algorithm to the expanded logged search requests based on content of the expanded logged search requests*, as recited in independent Claim 10. Desai and Schultz fail to overcome these deficiencies of Voorhees.

For at least the above reasons, Applicants respectfully submit that Desai, Schultz, and Voorhees, when considered both separately and in combination, fail to disclose or suggest the combinations of features recited in Claims 1-12 and 16-17. Withdrawal of the rejection of Claims 1-12 under 35 U.S.C. § 103(a) over the asserted combination of Desai, Schultz and Voorhees is respectfully requested.

In the Office Action the Examiner rejects Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Desai in view of Schultz and further in view of Voorhees and further in view of U.S. Patent No. 6,385,596 to Wiser, *et al.* (Wiser).

This rejection is respectfully traversed. Applicants respectfully submit that Wiser fails to overcome the respective deficiencies of Desai, Shultz, and Voorhees listed above. Accordingly, Claims 13-15 are allowable for at least the same reasons as allowable Claim 10 from which they depend. Withdrawal of the rejection of Claims 13-15 are rejected under 35 U.S.C. 103(a) over the asserted combination of Desai, Schultz, Voorhees and Wiser is respectfully requested.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance. Favorable consideration on the merits and prompt allowance are respectfully requested. In the event any questions arise regarding this communication or the application in general, the Examiner is invited to contact Applicants' undersigned representative at 1.206.262.8900.

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Respectfully submitted,

By _____

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